FUEL OILS BASED ON MIDDLE DISTILLATES AND COPOLYMERS OF ETHYLENE AND UNSATURATED CARBOXYLIC ESTERS

CROSS-REFERENCE TO RELATED APPLICATION

The present application is a continuation-in-part of U.S. Application Serial No. 09/111,548, filed on July 7, 1998, now abandoned.

EDT 8/04

FIELD OF THE INVENTION

The present invention relates to fuel oils which comprise middle distillates and copolymers of ethylene and esters of unsaturated carboxylic acids and which exhibit improved cold flow behavior.

BACKGROUND OF THE INVENTION

Crude oils and middle distillates such as gas oil, diesel oil or heating oil, obtained by distillation of crude oils, contain, depending on the origin of the crude oils, different amounts of n-paraffins, which crystallize out as lamellar crystals when the temperature is lowered and in some cases agglomerate with inclusion of oil. This results in a deterioration in the flow properties of these oils or distillates, giving rise to problems, for example in the recovery, transport, storage and/or use of the mineral oils and mineral oil distillates. In the case of mineral oils, this crystallization phenomenon can lead to deposits on the pipe walls during transport through pipelines, especially in the winter, and in individual cases, for example when the pipeline is shut down, even to complete blockage thereof. The precipitation of paraffins can also cause difficulties in storage and further processing of the mineral oils. Thus, it may be necessary in winter to store the mineral oils in heated tanks. In the case of mineral oil distillates, blockage of the filters in diesel engines and furnaces may occur owing to the crystallization, with the result that reliable metering of the fuels is prevented and complete interruption of the fuel or heating medium feed may occur.

In addition to the traditional methods for eliminating the paraffins which have crystallized out (thermally, mechanically or by means of solvents), which relate only